

ENHANCED FREE LAYER FOR A SPIN VALVE SENSOR**ABSTRACT OF THE DISCLOSURE**

5 A spin valve sensor is provided with a negative ferromagnetic coupling field
-H_{FC} for properly biasing a free layer and a spin filter layer is employed between the
free layer and a capping layer for increasing the magnetoresistive coefficient dr/R of
the spin valve sensor. A top portion of the free layer is oxidized for improving the
negative ferromagnetic coupling field -H_{FC} when the spin filter layer is employed for
increasing the magnetoresistive coefficient dr/R .

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